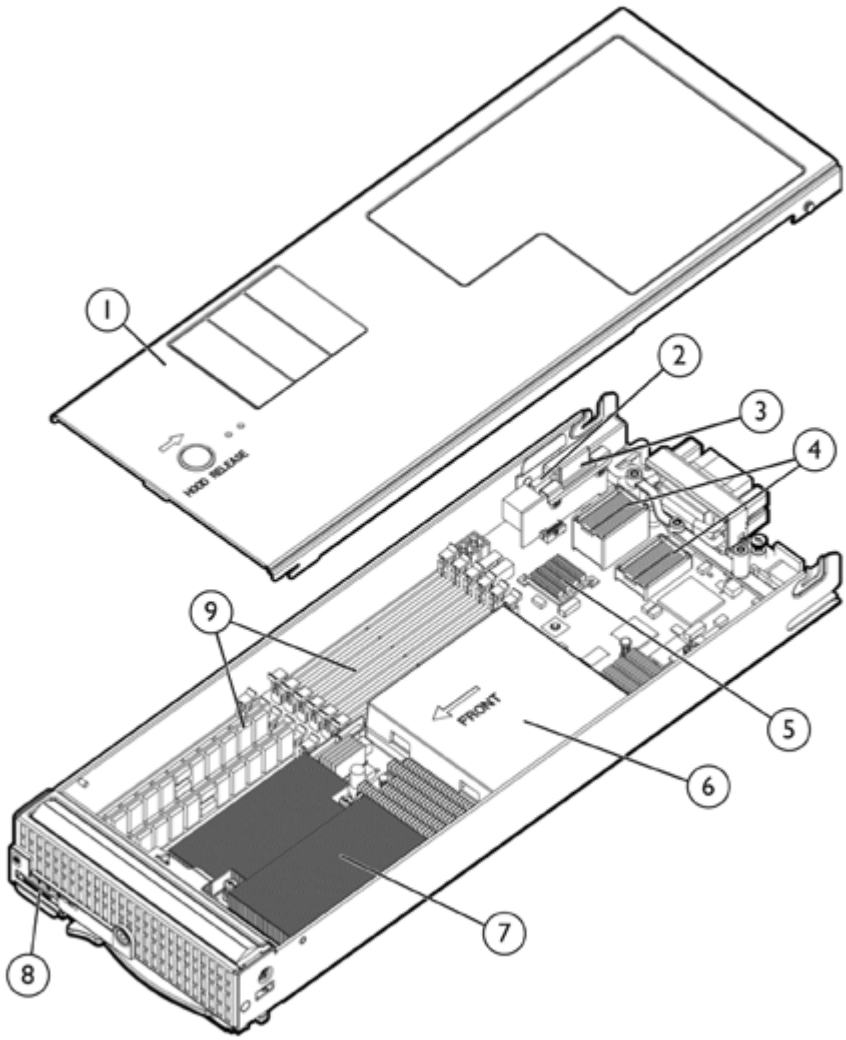
Overview



HP ProLiant BL280c G6 Server Blade

1. Access panel
2. Internal USB connector
3. Internal SD card slot
4. Two (2) mezzanine I/O expansion slots
5. Graphics controller chip
6. Processor socket 2 (with blank)
7. Processor socket 1 (populated)
8. HP c-Class Blade SUV Cable connector
9. Twelve (12) PC3-10600 (DDR3) Registered or Unbuffered DIMM Memory Slots

What's New

- Support for HP SATA Non-hot Plug 2.5" Midline (MDL) Solid State Drives

At A Glance

This document covers the HP ProLiant BL280c G6 server blade only. For more information on HP BladeSystem c-Class Enclosures

Overview

and HP BladeSystem c-Class Interconnect and Mezzanine Components, please see the following:

HP BladeSystem c3000 Enclosure QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/12790_na/12790_na.html

HP BladeSystem c7000 Enclosure QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/12810_na/12810_na.html

HP BladeSystem c-Class Interconnect and Mezzanine Components:
http://h18004.www1.hp.com/products/blades/components/c-class-interconnects.html
http://h18004.www1.hp.com/products/blades/components/c-class-adapters.html

HP ProLiant BL280c G6 server blade includes:

- Processor:
  - Up to two (2) Intel® Xeon® 5600 or 5500 series processors
  - Intel® 5500 chipset
- Memory:
  - Twelve (12) DIMM slots
  - Up to 192GB memory with PC3-10600 (DDR3) Registered (RDIMM) memory, operating at 1066MHz when fully populated at 2 DIMMs per Channel in 12 slots.
  - Up to 48GB, using PC3-10600 DDR3 Unbuffered (UDIMM) memory, operating at 1066MHz when fully populated at 2 DIMMs per Channel in 12 slots
  - 1333MHz available when fully populated 2 DIMMs per Channel with ROM update via ROM Based Setup Utility (RBSU).
- Internal Drive Support:
  - Up to two (2) small form factor (SFF) HP Solid State Drives (SSD) For ProLiant Server Blades
  - Up to two (2) small form factor (SFF) SATA or SAS Non-Hot Plug hard disk drives
- Storage Controller:
  - HP Embedded SATA RAID Controller
    NOTE: This is a chip set SATA RAID controller. It supports RAID 0 and 1 only and no Battery Backed Write Cache. User needs to enable the RAID option through HP RBSU (ROM Base Setup Utility) first before the RAID can be activated. Users also need to download the OS driver from the http://www.hp.com/support/BL280cG6 website for OS Array Monitoring.
- Network Controller:
  - One (1) HP Integrated NC362i Dual Port Gigabit Server Adapter
  - Additional Ethernet adapter ports available via the mezzanine expansion slot
  - One (1) additional 10/100 network adapter dedicated to iLO 2 Management
- Mezzanine Support:
  - Two (2) I/O expansion mezzanine slots
  - Supports up to two (2) additional mezzanine cards of your choice:
    - Dual-Port FlexFabric Adapter mezzanine options
    - Dual-Port Fibre Channel Mezzanine (4-Gb or 8-Gb) options for SAN connectivity
    - Ethernet server adapter mezzanine options for additional network ports
    - InfiniBand (IB) Mezzanine options for low latency and high bandwidth server interconnectivity
    - I/O Accelerator mezzanine options for high transaction rate local storage
    - SAS mezzanine option for external direct attach and shared SAS storage
- Internal USB Support:
  - One (1) internal USB 2.0 connector for security key devices and USB drive keys
  - One (1) internal SD-HC card slot
- Security - Trusted Platform Module:
  - One (1) internal TPM 1.2 module connector

Overview

- Form Factor:
  - HP ProLiant BL280c is a half-height server blade that plugs into the BladeSystem c3000 and c7000 enclosures
    - 16 blades per c7000 (10u) enclosure
    - 8 blades per c3000 (6U) enclosure
- Infrastructure Management:
  - This server blade requires the latest version of the Onboard Administrator firmware. This firmware release may also require other subsystem firmware upgrades. For information on the latest firmware versions, please see the Blades Firmware Maintenance website at: http://h18004.www1.hp.com/products/blades/components/c-class-compmatrix.html
  - Convenient slide-out Systems Insight Display for quick and easy front view server diagnostics, along with status LEDs, Automatic Server Recovery (ASR), ROM Based Setup Utility (RBSU)
  - HP Integrated Lights-Out 2 (iLO 2) management processor for simplified server setup, health monitoring and recovery, power and thermal control, and lights-out remote administration.
  - HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, control and optimize your IT infrastructure through a single, simple management console. Insight Control supports both Windows and Linux-based central management servers.
  - HP Insight Dynamics for ProLiant, a product option, is an integrated command center that enables IT Staff personnel to continuously analyze and optimize a converged infrastructure, while automating and reducing the cost of common data center tasks by as much as 40 percent. This ultimately enables them to dynamically keep pace with the organization's changing business requirements.
- Operating Systems:
  - Supports Windows, Linux, VMware, Solaris, and Citrix XenServer
- Enclosures:
  - HP offers two different c-Class server blade enclosures to meet your individual needs:
    - The HP BladeSystem c7000 rack enclosure is 10U high and holds up to 16 ProLiant BL280c G6 servers plugged vertically.
    - The HP BladeSystem c3000 rack enclosure is 6U high and holds up to 8 HP ProLiant BL280c G6 servers plugged horizontally.
  - Server blades, storage blades, interconnect modules, power supplies, fans, and redundant Onboard Administrator modules are all designed to fit into the c3000 and c7000 enclosures.
  - For additional enclosure information, please see: http://h18004.www1.hp.com/products/blades/components/enclosures/c-class/index.html.
- Warranty:
  - This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Hardware diagnostic support and parts replacement is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.
    NOTE: Server Warranty includes 3 year Next Day Parts replacement, 0-Years Labor, 0-Years Onsite support. Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html.

Standard Features

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

Processor One of the following depending on Model	Six-Core Processors Intel® Xeon® X5675 (3.06GHz/6-core/12MB/95W, DDR3-1333, HT, Turbo 2/2/2/2/3/3) Processor Intel® Xeon® X5670 (2.93GHz/6-core/12MB/95W, DDR3-1333, HT, Turbo 2/2/2/2/3/3) Processor Intel® Xeon® processor X5660 (2.80GHz/6-core/12MB/95W, DDR3-1333, HT, Turbo 2/2/2/2/3/3) Processor Intel® Xeon® X5650 (2.66GHz/6-core/12MB/95W, DDR3-1333, HT, Turbo 2/2/2/2/3/3) Processor Intel® Xeon® E5649 (2.53GHz/6-core/12MB/80W, DDR3-1333, HT, Turbo 1/1/1/1/2/2) Processor Intel® Xeon® Processor E5645 (2.40GHz/6-core/12MB/80W, DDR3-1333, HT, Turbo 1/1/1/1/2/2) Processor Intel® Xeon® processor L5640 (2.26GHz/6-core/12MB/60W, DDR3-1066, HT, Turbo 2/2/3/3/4/4) Processor Quad-Core Processors Intel® Xeon® X5672 (3.20GHz/4-core/12MB/95W, DDR3-1333, HT, Turbo 2/2/3/3) Processor Intel® Xeon® E5640 (2.66GHz/4-core/12MB/80W, DDR3-1333, HT, Turbo 1/1/2/2) Processor Intel® Xeon® Processor E5630 (2.53GHz/4-core/12MB/80W, DDR3-1066, HT, Turbo 1/1/2/2) Intel® Xeon® E5620 (2.40GHz/4-core/12MB/80W, DDR3-1333, HT, Turbo 1/1/2/2) Processor Intel® Xeon® E5540 (2.53GHz/4-core/8MB/80W) Processor Intel® Xeon® E5530 (2.40GHz/4-core/8MB/80W) Processor Intel® Xeon® E5520 (2.26GHz/4-core/8MB/80W) Processor Intel® Xeon® E5506 (2.13GHz/4-core/4MB/80W, DDR3-800) Processor Intel® Xeon® E5504 (2.00GHz/4-core/4MB/80W, DDR3-800) Processor Intel® Xeon® L5630 (2.13GHz/4-core/12MB/40W, DDR3-1333, HT, Turbo 1/1/2/2) Processor Dual-Core Processors Intel® Xeon® E5502 (1.86GHz/2-core/4MB/80W) Processor Intel® Xeon® E5503 (2.0GHz/2-core/4MB/80W, DDR3-800) Processor NOTE: HT indicates that the processor model supports Intel® Hyper-Threading Technology. NOTE: Turbo indicates the maximum potential frequency increment when using Intel® Turbo Boost Technology, with 6, 5, 4, 3, 2, and 1 cores active. NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed. NOTE: For the Intel 5600 and 5500 Series, the letter preceding the model number indicates the performance/wattage of the processor. "X" denotes High Performance/Wattage; "E" denotes Enterprise Performance/Wattage (Mainstream); and "L" denotes Lower Wattage.
Upgradeability	Upgradeable to two (2) processors

Standard Features

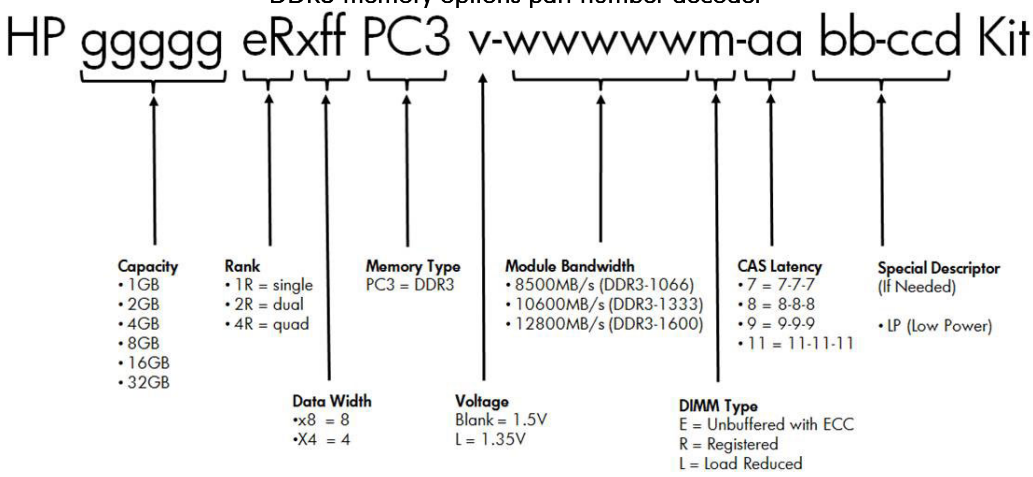
Cache Memory One of the following depending on Model	4MBshared L3 cache 8MB shared L3 cache 12MB shared L3 cache
Chipset	Intel® 5500 chipset

Memory

Type	PC3-10600 (DDR3-1333) Registered or Unbuffered DIMMS
Standard	2GB (1 x 2GB) RDIMM 4GB (2 x 2GB) RDIMM 6GB (3 x 2GB) RDIMM
Maximum	Up to 192GB memory with Registered DIMMs Up to 48GB memory with Unbuffered DIMMs

NOTE: Depending on the memory configuration and processor model the memory speed may run at 1333MHz, 1066MHz or 800MHz. Please see the Online Memory Configuration Tool for details; www.hp.com/go/ddr3memory-configurator

DDR3 memory options part number decoder



Memory Protection	Advanced ECC (multi-bit error protection) Memory Mirroring Mode Memory Lock-Step Mode Memory Online Spare Mode supported on Xeon 5600 Series processors
Network Controller	Embedded NC362i Dual Port Gigabit Server Adapter One (1) additional 10/100 network adapter dedicated to iLO 2 Management
I/O Expansion Slots	Two (2) I/O expansion mezzanine slots (x8 PCI Express)

Standard Features

Integrated Manageability	HP Integrated Lights-Out 2 (iLO 2) management processor
Storage Controller	HP Embedded SATA RAID Controller NOTE: This is a chip set SATA RAID controller. It supports RAID 0 and 1 only and no BBWC. User needs to enable the RAID option through HP RBSU (ROM Base Setup Utility) first before the RAID can be activated. Users also need to download the OS driver from the http://www.hp.com/support/BL280cG6 website for OS Array Monitoring

Maximum Internal Storage One of the following depending on Model			
	Non Hot-Plug Serial ATA (SATA)	1TB SATA	2 x 500GB SATA
	Non Hot-Plug SAS	1.2TB SAS	2 x 600GB SAS
	Non-Hot Plug SSD (SATA)	800GB SATA	2 x 400GB SATA

Graphics	Integrated ATI RN-50 1280 x 1024 x 16M color (32 MB DDR1 memory)	
	Resolution Color Depths	1280 x 1024, 16.7M, 64k, 256.16 1024 x 768, 16.7M, 64k, 256,16 800 x 600, 16,7M, 64k, 256, 16 640 x 480, 16,7M, 64k, 256, 16

Fibre Channel Support

Two (2) optional Fibre Channel HBAs are supported by the HP ProLiant BL280c G6. Both mezzanine circuit boards connect directly to the server blade system board. These Fibre Channel HBAs are available via option kits and must be ordered separately.

Emulex LPe1105 4Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem (PN 403621-B21)

- Based on the same field-proven ASIC, firmware, and driver technology as Emulex's renowned LPe1150 HBA, the Emulex LPe1105-HP is fully driver compatible with all Emulex HBAs

Emulex LPe1205 8Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem (PN 456972-B21)

- Exceptional performance, enhanced security, and scalable management for virtual server and enterprise-class applications

QLogic QMH2462 4Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem (PN 403619-B21)

- Uses common drivers which means that customers can standardize on one QLogic driver whether they are using the QMH2462 or other 4Gb and 2Gb HBAs powered by QLogic

QLogic QMH2562 8Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem (PN 451871-B21)

- Provides a first step into the 8Gb future, advanced, embedded support for virtualized environments and reduced power consumption

HP BLc Brocade 804 8Gb Fibre Channel Host Bus Adapter (PN 590647-B21)

- Application oriented Quality of Service (AQoS) providing the ability to configure, prioritize, and optimize traffic flows from virtual machines and/or applications to the target port

Standard Features

Brocade, Emulex and QLogic Fibre Channel HBAs feature:

- Optimal performance utilizing PCI Express
- 4/2/1Gb/s auto negotiating speeds (4 Gb HBAs)
- 8/4/2Gb/s auto negotiating speeds (8 Gb HBAs)
- Dual-ports for redundant path connections
- Up to two FC HBAs per server blade providing redundant FC HBA support
- Optimized for HP Storage products and supported by third party SAN vendors
- Support for Microsoft® Windows® and Linux operating systems environments

Compatible SAN

HP ProLiant BL280c G6 server blades are optimized for HP MSA, EVA and XP

HP ProLiant BL280c G6 server blades are compatible with select 3rd party SANs Please see blade storage page for more details: http://h18004.www1.hp.com/products/blades/components/c-class-sans.html

HP Virtual Connect

HP Virtual Connect is an Interconnection option for HP BladeSystem c-Class that simplifies server connectivity to data and storage networks, and reduces costs. Unique HP Flex-10 and FlexFabric technologies make maximum use of network bandwidths, provide dynamic tuning and enable extreme flexibility to meet individual server and infrastructure requirements. HP Virtual Connect Enterprise Manager (VCEM) provides a central console to administer network connections and workloads for thousands of servers. For more information on Virtual Connect Ethernet, Fibre Channel, Converged Network and management options see: www.hp.com/go/virtualconnect

HP Insight management software

HP Service Pack for ProLiant

HP Service Pack for ProLiant (SPP) and HP Smart Update Manager (HP SUM) version 5 provide a new, comprehensive approach to firmware and system software maintenance. Together they provide better operating stability and ensure maximum uptime. The SPP will be updated at a predictable cadence, typically coinciding with new HP server hardware launches. By enabling firmware to be updated online and integrating firmware and system software updates in one operation HP SUM and the SPP offer faster updates of individual servers and dramatically faster updates of entire BladeSystem enclosures. Further improving system uptime and stability is the fact that HP provides 12 months of support on each Service Pack for ProLiant.

The user experience around HP SUM and the SPP has been improved in several ways, starting with the web download. A single web page provides access to a single download containing both the latest version of HP SUM version 5 and the latest SPP. Optional smaller subsets with only specific types of servers or specific operating systems are offered to save on download time. The HP SUM application has been re-written to provide a more straightforward, intuitive user interface that guides the user through the steps of discovery, analyses and update, providing comprehensive information on available updates, criticality and interdependencies. This information is also available in reports. By providing the option of multiple local or shared repositories which can be easily updated from hp.com, HP SUM provides the tools to optimize stability and consistency throughout the company. While HP SUM and the SPP will recommend the combinations of firmware and system software that HP has found to be the best practice, the application gives

customers the flexibility to set their own specific baseline.

The Service Pack for ProLiant has been rigorously tested with specific attention for interaction between firmware, drivers and agents both within the server as well as in interaction with the BladeSystem enclosure components (Onboard Administrator and Virtual Connect). This testing ensures the highest quality as well as providing the input for HP SUM to deploy updates taking into account all interdependencies, when determining the correct updates and order of update deployment.

The Service Pack for ProLiant (which includes HP SUM 5) can be downloaded from: www.hp.com/go/spp/download. More information can be found: http://www.hp.com/go/spp and http://www.hp.com/go/hpsum

HP Insight Foundation

Insight Foundation is being baselined at version v8.70 which means the following:

- Its Media Kit (contains 2 SmartStart CDs, the Firmware DVD, and the Management DVD) will continue to ship with all supported ProLiant G7 or earlier BTO servers until the last supported server is no longer shipping.
- The Media Kit will not be updated past version 8.70.
- ProLiant G7 or earlier CTO servers are able to order the Media Kit with the understanding that the media is not updated. Please check specific server QuickSpecs for availability of CTO Kit.
- PSP and Firmware DVD downloads will be updated through 2Q 2012 at the HP Insight Foundation Suite for ProLiant downloads tab: http://www.hp.com/go/foundation

Customers are urged to use the replacement product, HP Service Pack for ProLiant, instead of Insight Foundation Suite which is found at these location:

- www.hp.com/go/spp
- www.hp.com/go/spp/download

HP Integrated Lights-Out (iLO)

HP Integrated Lights-Out (iLO) simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration of ProLiant ML, DL, and BL servers. HP iLO functions without additional software and can be accessed from any location via a web browser. HP iLO Advanced can be purchased as a stand-alone product but also comes included with the purchase of HP Insight Control. HP iLO works hand-in-hand with HP Systems Insight Manager, Insight Control suites, and Insight Dynamics for ProLiant, helping customers unleash the value of the ProLiant platform and deliver the highest possible quality of IT service. For more information, visit: www.hp.com/go/iLO

HP Insight Control

HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console.

Two versions of Insight Control are available, to serve environments requiring either a Linux-based or a Windows-based central management server: HP Insight Control for Linux, and HP Insight Control. See

		www.hp.com/go/insightcontrol HP Insight Control includes one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit: http://www.hp.com/services/insight.
	HP Insight Dynamics for ProLiant	HP Insight Dynamics for ProLiant, a product option, is advanced infrastructure management software that enables IT staff to instantly adjust their environments to meet dynamic business demands by provisioning, optimizing and protecting complex infrastructure in minutes. It's a powerful toolkit, integrated-by-design, that accelerates complex technology projects and simplifies daily operations, transforming data center economics. With Insight Dynamics IT professionals can plan capacity and power continuously, balance workloads across physical and virtual resources, and ensure cost-effective high availability. It also enables IT organizations to provision infrastructure consistently and automatically from pools of shared resources using a self-service portal. Resources provisioned can range from a single virtual machine to complex multi-tier environments and their associated physical and virtual resource requirements. In addition to the previous functional benefits, it also provides a cost-effective disaster recovery for physical and virtual environments that works with HP Continuous Access software for both the Enterprise Virtual Array and the XP storage array allowing application environments to be reactivated in minutes with the touch of a button to a remote location. NOTE: For more information, visit: http://www.hp.com/go/insightdynamics
High Performance Clusters	HP Cluster Platforms	HP Cluster Platforms are specifically engineered, factory-integrated large-scale ProLiant clusters optimized for High Performance Computing, with a choice of servers, networks and software. Operating system options include specially priced offerings for Red Hat Enterprise Linux and SUSE Linux Enterprise Server, as well as Microsoft Windows HPC Server. A Cluster Platform Configurator simplifies ordering. http://www.hp.com/go/clusters
	HP HPC Interconnects	High Performance Computing (HPC) interconnect technologies are available for this server as part of the HP Cluster Platform portfolio. These high-speed InfiniBand and Gigabit interconnects are fully supported by HP when integrated within an HP cluster. Flexible, validated solutions can be defined with the help of configuration tools. http://www.hp.com/techservers/clusters/ucp/index.html
	HP Insight Cluster Management Utility	HP Insight Cluster Management Utility (CMU) is an HP-licensed and HP-supported suite of tools that are used for lifecycle management of hyperscale clusters of Linux ProLiant systems. CMU includes software for the centralized provisioning, management and monitoring of nodes. CMU makes the administration of clusters user friendly, efficient, and effective. http://www.hp.com/go/cmu

Standard Features

HP HPC Linux Value Pack	HP HPC Linux Value Pack (Value Pack) is an HP-licensed and HP-supported option to HP Insight CMU, for the development and deployment of applications on HPC Cluster Platforms. Value Pack includes the Platform LSF workload scheduler and Platform Application Center, as well as the HP-MPI parallelization library. HP HPC Linux Value Pack

Operating Systems and Virtualization Software	Microsoft Windows Server Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES) Solaris VMware Citrix XenServer NOTE: For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server including, how to purchase from HP, please visit our OS Support Site at: http://www.hp.com/go/ossupport and our driver download page http://www.hp.com/support/BL280cG6

Availability	• Dual port Fibre Channel Mezzanine card for redundant SAN connection • Advanced ECC memory - can correct a multi-bit error (up to 4 bits) that occurs within one memory chip • Support for Memory Mirroring and Memory Lock-Step Mode • Network adapter teaming (network fault tolerance, transmit load balancing, switch-assisted load balancing

Industry Standard Compliance	ACPI 2.0 Compliant PCI 2.2 Compliant WOL Support Microsoft® Logo certifications USB 2.0 Support

Security	• One (1) internal USB 2.0 connector for security key devices and USB drive keys • Power-on password • Administrator's password • Integrated Lights-Out 2 has 12 customizable user accounts and SSL encryption • Integrated Lights-Out 2 can be disabled via a Global Setting

Standard Features

Security - Trusted Platform Module

The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates and encryption keys. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline.

NOTE: ProLiant OS pre-installed units will come with the partition required for TPM deployment.
NOTE: The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.

Factory Express Portfolio for Servers and Storage

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services on your specific server model please contact your sales representative or go to: http://www.hp.com/go/factory-express.

HP Enterprise Configurator

The HP eConfigure Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance. http://www.hp.com/products/configurator.

Service and Support	**HP Technology Services for Industry Standard Servers and BladeSystem** Capitalizing on HP ProLiant server and HP BladeSystem capabilities requires a service partner who understands your increasingly complex business technology environment. That's why it makes sense to team up with the people who know HP infrastructure hardware and software best - the experienced professionals at HP Services. **What HP ProLiant and BladeSystem Services can do for you** HP ProLiant and BladeSystem Services can help you design, deploy, test, integrate, support, and manage IT and infrastructure solutions. This way, HP proposes services solutions that include more than just uplift of base warranty. You can get the support you need by choosing from one of a number of service packaged solutions we have designed to address wider set of customer support needs. **HP Technology Services meets business challenges with services offered in three packages** - Optimized Care Package, Standard Care Package, and Basic Care Package - available for each product group. Such packaged solutions enable customers to optimize technology operations, minimize risk and drive better business outcomes with easy-to-buy, easy-to-use scalable support packages for servers, storage, networking and software.
Optimized Care Package	**Supports maintaining servers at optimum performance availability** **HP Installation and Startup Service for HP BladeSystem c-Class Infrastructure for c3000/c7000 enclosure** Provides for the installation and startup of a BladeSystem c3000 Infrastructure in a single blade enclosure including hardware and software, including deployment of OS, HP SIM, RDP, RDP, PMP and VPM http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA0-5964ENW.pdf **3-Year HP Critical Advantage L3 for c3000/c7000 enclosure + 3-Year HP Critical Advantage L3 for Blade server** Provides end-to-end infrastructure support solution for business critical applications running on virtualized/x86 infrastructures, enabling the customers to cost effectively build, operate, and continuously improve their IT environment http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA3-1772ENW.pdf **HP Installation and Startup Service for HP BladeSystem c-Class Enhanced Network** HP Provides for the configuration and testing of BladeSystem Ethernet interconnect switches to facilitate proper implementation of network protocols and access to advanced features. http://h20195.www2.hp.com/V2/GetPDF.aspx/4aa0-5969ENW.pdf **Additional Services**: Virtualization Services - Strategy, Design, Transition, Operation, Continual Service Improvement.

Service and Support

Standard Care Package	Package that maintains high level of server availability

HP Installation and Startup Service for HP BladeSystem c-Class Infrastructure for c3000/c7000 enclosure
Provides for the installation and startup of a BladeSystem c3000 Infrastructure in a single blade enclosure including hardware and software, including deployment of OS, HP SIM, RDP, RDP, PMP and VPM
http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA0-5964ENW.pdf

HP Installation and Startup Service for HP BladeSystem c-Class Enhanced Network
HP Provides for the configuration and testing of BladeSystem Ethernet interconnect switches to facilitate proper implementation of network protocols and access to advanced features
http://h20195.www2.hp.com/V2/GetPDF.aspx/4aa0-5969ENW.pdf

3-Year, HP 6 hour Hardware Support Onsite Call-to-Repair Service for c3000/c7000 enclosure + 3-Year, HP 6 hour Hardware Support Onsite Call-to-Repair Service for Blade server
Provides an IT manager with a team of support specialists who will quickly begin troubleshooting the system to help return the hardware to operating condition within 6 hours of the initial service request to the HP Global Solution Center
http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EN.pdf

3-Year , HP 24x7 Software Support for Insight Control
Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers
http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6645EEE.pdf

1-Year HP Proactive Select 30 Credit
Provides a flexible way to purchase HP best-in-class consultancy and technical services
http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA2-3842ENN.pdf

Additional Services: Software OS (Microsoft, Linux (SUSE/Red Hat) & VMware Installation & Start Up and Software Support); Microsoft or Linux or VMware education courses; +60 Proactive Select Credits, Factory Express.

Service and Support

Basic Care Package	Delivers minimum recommended support service level HP Installation and Startup Service for HP BladeSystem c-Class Infrastructure for c3000/c7000 enclosure Provides for the installation and startup of a BladeSystem c3000 Infrastructure in a single blade enclosure including hardware and software, including deployment of OS, HP SIM, RDP, RDP, PMP and VPM http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA0-5964ENW.pdf 3-Year, HP 24x7 4 hour Response, Hardware Support Onsite Service for c3000/c7000 enclosure + 3-Year, HP 24x7 4 hour Response, Hardware Support Onsite Service for Blade server Provides you with rapid remote support and if required an HP authorized representative who will arrive on site any time and day of the year to begin hardware maintenance service within 4 hours of the service request being logged http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE.pdf 3-Year , HP 24x7 Software Support for Insight Control Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6645EEE.pdf 1-Year HP Proactive Select 10 Credit Provides a flexible way to purchase HP best-in-class consultancy and technical services http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA2-3842ENN.pdf Additional Services: Startup Blade System c-Cass Enhanced Network Service; Software OS (Microsoft, Linux (SUSE/Red Hat) & VMware Installation & Start Up and Software Support); +30 Proactive Select Credits, Factory Express
Insight Remote Support	The packages include HP Insight Remote Support that uses proven technology to deliver secure, reliable 24x7 remote monitoring, diagnoses, and problem resolution. It is available at no additional cost to all warranty, HP Care Pack Service, and service agreement customers.
For more information	To learn more on HP ProLiant servers and HP BladeSystem servers, please contact your HP sales representative or HP Authorized Channel Partner. Or visit: www.hp.com/services/bladesystem

Models

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

NOTE: The models below support Intel® Xeon® 5600 or 5500 series processors.

HP ProLiant BL280c G6 E5649 1P 6GB-R Server 632693-B21 HP ProLiant BL280c G6 X5650 1P 6GB-R Emb SATA Non-hot Plug SAS/SATA 2 SFF Server 598129-B21 HP ProLiant BL280c G6 E5630 1P 4GB-R Emb SATA Non-hot Plug SAS/SATA 2 SFF Server 598130-B21 HP ProLiant BL280c G6 E5506 1P 2GB-R Emb SATA Non-hot Plug SAS/SATA 2 SFF Server 598132-B21 HP ProLiant BL280c G6 L5640 1P 4GB-R Emb SATA Non-hot Plug SAS/SATA 2 SFF Server 598131-B21	Processor(s) One of the following depending on Model	(1) Intel® Xeon® Processor X5650 (2.66GHz/6-core/12MB/95W, DDR3-1333, HT, Turbo 2/2/2/2/3/3) (1) Intel® Xeon® Processor E5649 (2.53GHz/6-core/12MB/80W, DDR3-1333, HT, Turbo1/1/1/1/2/2) (1) Intel® Xeon® Processor E5630 (2.53GHz/4-core/12MB/80W, DDR3-1066, HT, Turbo 1/1/2/2) (1) Intel® Xeon® Processor E5506 (2.13GHz/4-core/4MB/80W, DDR3-800) (1) Intel® Xeon® Processor L5640 (2.26GHz/6-core/12MB/60W, DDR3-1333, HT, Turbo 2/2/3/3/4/4)
	Cache Memory One of the following depending on Model	12MB shared L3 cache 8MB shared L3 cache 4MB shared L3 cache
	Memory One of the following depending on Model	2GB PC3-10600 (DDR3-1333) Registered DIMMs 4GB PC3-10600 (DDR3-1333) Registered DIMMs 6GB PC3-10600 (DDR3-1333) Registered DIMMs
	Network Adapter	Embedded NC362i Dual Port Gigabit Server Adapter and one (1) additional 10/100 network adapter dedicated to iLO 2 Management
	Storage Controller	HP Embedded SATA RAID Controller
	Hard Drives	No drives included; Two (2) SFF Non-Hot Plug SATA or SAS drive bays
	Internal Storage	SATA: 1TB (2x500GB SATA) SAS: 1.2TB (2x600GB SAS)
	Optical Drive	None
	Form Factor	Up to 8 half-height blades supported in HP BladeSystem c3000 Enclosure Up to 16 half-height blades supported in HP BladeSystem c7000 Enclosure

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on CTO product offerings and requirements.
NOTE: HP does not allow factory integration of options into standard models listed above.
Configure-to-order server blades must start with a CTO Blade.
NOTE: FIO indicates that this option is a Factory Installable Option.

Step 1: Base Server Blade Configuration (Select a CTO Blade)

Models	HP ProLiant BL280c G6 Configure-to-order Blade	507865-B21
	Configurable Model ships with:	
	One (1) HP NC362i Integrated dual-port Gigabit Ethernet Adapter plus one (1) additional 10/100 network adapter dedicated to iLO 2 Management	
	Integrated Lights-Out 2 Standard Blade Edition	

Step 2: Choose Required Options (one of the following from each list unless otherwise noted)

HP Processors	NOTE: If two processors are desired, select one xxxxxx-L21 and one xxxxxx-B21	
	Six-Core Processors	
	HP BL280c G6 Intel® Xeon® X5675 (3.06GHz/6-core/12MB/95W) FIO Processor Kit	632694-L21
	HP BL280c G6 Intel® Xeon® E5649 (2.53GHz/6-core/12MB/80W) FIO Processor Kit	632698-L21
	HP BL280c G6 Intel® Xeon® E5645 (2.40GHz/6-core/12MB/80W) FIO Processor Kit	632700-L21
	HP BL280c G6 Intel® Xeon® X5670 (2.93GHz/6-core/12MB/95W) FIO Processor Kit	598135-L21
	HP BL280c G6 Intel® Xeon® X5660 (2.80GHz/6-core/12MB/95W) FIO Processor Kit	598136-L21
	HP BL280c G6 Intel® Xeon® X5650 (2.66GHz/6-core/12MB/95W) FIO Processor Kit	598137-L21
	Quad-Core Processors	
	HP BL280c G6 Intel® Xeon® X5672 (3.20GHz/4-core/12MB/95W) FIO Processor Kit	632696-L21
	HP BL280c G6 Intel® Xeon® E5640 (2.66GHz/4-core/12MB/80W) FIO Processor Kit	598138-L21
	HP BL280c G6 Intel® Xeon® E5630 (2.53GHz/4-core/12MB/80W) FIO Processor Kit	598139-L21
	HP BL280c G6 Intel® Xeon® E5620 (2.40GHz/4-core/12MB/80W) FIO Processor Kit	598140-L21
	HP BL280c G6 Intel® Xeon® E5506 (2.13GHz/4-core/4MB/80W) FIO Processor Kit	507825-L21
	Dual-Core Processors	
	HP BL280c G6 Intel® Xeon® E5503 (2.0GHz/2-core/4MB/80W) FIO Processor Kit	598144-L21
	HP BL280c G6 Intel® Xeon® L5640 (2.26GHz/6-core/12MB/60W) FIO Processor Kit	598141-L21

	HP BL280c G6 Intel® Xeon® L5630 (2.13GHz/4-core/12MB/40W) FIO Processor Kit	598142-L21
HP Memory	Registered DIMMS (RDIMMs)	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
	HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
	HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit NOTE: Low Voltage DIMMs can only be used with Intel Xeon 5600 series processors.	604504-B21
	HP 4GB (1x4GB) Quad Rank x8 PC3-8500 (DDR3-1066) Registered CAS-7 Low Power Memory Kit	500660-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit NOTE: Low Voltage DIMMs can only be used with Intel Xeon 5600 series processors.	604506-B21
	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
	HP 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit	627812-B21
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21
	NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator. NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient NOTE: PC3L is a low voltage memory	

Step 3: Choose Additional Options for Factory Integration

NOTE: For additional options including server blade enclosures interconnect and mezzanine options and power subsystem options; please see the options section below; or the following:
HP BladeSystem c-Class Enclosures QuickSpecs:
HP BladeSystem c3000 Enclosure QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/12790_na/12790_na.html
HP BladeSystem c7000 Enclosure QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/12810_na/12810_na.html
and HP BladeSystem c-Class Interconnect and Mezzanine Components:
http://h18004.www1.hp.com/products/blades/components/c-class-interconnects.html
http://h18004.www1.hp.com/products/blades/components/c-class-adapters.html

Core Options

NOTE: For additional Core Options and Additional Options please see options sections below.

HP Ethernet Mezzanine Options	Gigabit Ethernet Mezzanines	
	HP NC325m PCI Express Quad Port Gigabit Server Adapter	416585-B21
	HP NC360m Dual Port 1GbE BL-c Adapter	445978-B21
	HP NC364m Quad Port 1GbE BL-c Adapter	447883-B21
	HP NC382m PCI Express Dual Port Multifunction Gigabit Server Adapter	453246-B21
	NOTE: The Gigabit Ethernet adapters above transmit from the server only at 2000 Mbps, full duplex per port. For more information, see the "Network Controller" segment in the Standards Features section for more information.	
	10 Gigabit Mezzanines	
	NOTE: A 10 Gigabit Ethernet adapter is required for each server blade connecting to a 10Gb interconnect in bays 3-8 (HP BladeSystem c7000 Enclosure) or bays 2-4 (HP BladeSystem c3000 Enclosure). NOTE: Each 10 Gigabit Ethernet adapter requires a minimum of 2GB of server memory. NOTE: Each 10 Gigabit Either adapter supports linking at 1000Mbps or 10000Mbps when not connected to a Flex-10 enabled module and will link with all current 1Gb switches at 1Gb. NOTE: The ROM Based Setup Utility (RBSU) feature allows for the configuring of a FlexFabric Adapter to any of the supported protocols. For example iSCSI to FCoE (Fibre Channel over Ethernet). Note that a HP Virtual Connect profile takes precedence over the setting in this menu. Also, some FlexFabric Adapters may require that network boot be enabled in order to configure the protocol. If the protocol is configured without enabling network boot with certain FlexFabric Adapters, the protocol may not take effect. Once the protocol has taken effect on the first boot after configuring this option, network boot may be disabled if desired.	
	HP NC532m Dual Port 10GbE Multifunction BL-c Adapter	467799-B21
	HP NC542m Dual Port Flex-10 10GbE BL-c Adapter	539857-B21
	HP NC550m 10Gb 2-port PCIe x8 Flex-10 Ethernet Adapter	581204-B21
	HP BLc NC551m Dual Port FlexFabric 10Gb Converged Network Adapter	580151-B21
	HP NC552m 10Gb 2-port Flex-10 Ethernet Adapter	610609-B21
	HP NC553m 10Gb 2-port FlexFabric Adapter	613431-B21
HP Fibre Channel Mezzanine Options	4Gb Fibre Channel Mezzanines	
	Emulex LPe1105 4Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem	403621-B21
	QLogic QMH2462 4Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem	403619-B21
	8Gb Fibre Channel Mezzanines	
	Emulex LPe1205 8Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem	456972-B21
	QLogic QMH2562 8Gb Fibre Channel Host Bus Adapter for c-Class BladeSystem	451871-B21
	HP BLc Brocade 804 8Gb Fibre Channel Host Bus Adapter	590647-B21

Core Options

HP Processors	Six-Core Processor Option Kits	
	HP BL280c G6 Intel® Xeon® X5675 (3.06GHz/6-core/12MB/95W) Processor Kit	632694-B21
	HP BL280c G6 Intel® Xeon® E5649 (2.53GHz/6-core/12MB/80W) Processor Kit	632698-B21
	HP BL280c G6 Intel® Xeon® E5645 (2.40GHz/6-core/12MB/80W) Processor Kit	632700-B21
	HP BL280c G6 Intel® Xeon® X5670 (2.93GHz/6-core/12MB/95W) Processor Kit	598135-B21
	HP BL280c G6 Intel® Xeon® X5660 (2.80GHz/6-core/12MB/95W) Processor Kit	598136-B21
	HP BL280c G6 Intel® Xeon® X5650 (2.66GHz/6-core/12MB/95W) Processor Kit	598137-B21
	HP BL280c G6 Intel® Xeon® L5640 (2.26GHz/6-core/12MB/60W) Processor Kit	598141-B21
	Quad-Core Processor Option Kits	
	HP BL280c G6 Intel® Xeon® X5672 (3.20GHz/4-core/12MB/95W) Processor Kit	632696-B21
	HP BL280c G6 Intel® Xeon® E5640 (2.66GHz/4-core/12MB/80W) Processor Kit	598138-B21
	HP BL280c G6 Intel® Xeon® E5630 (2.53GHz/4-core/12MB/80W) Processor Kit	598139-B21
	HP BL280c G6 Intel® Xeon® E5620 (2.40GHz/4-core/12MB/80W) Processor Kit	598140-B21
	HP BL280c G6 Intel® Xeon® E5540 (2.53GHz/4-core/8MB/80W) Processor Kit	507820-B21
	HP BL280c G6 Intel® Xeon® E5530 (2.40GHz/4-core/8MB/80W) Processor Kit	507822-B21
	HP BL280c G6 Intel® Xeon® E5520 (2.26GHz/4-core/8MB/80W) Processor Kit	507824-B21
	HP BL280c G6 Intel® Xeon® E5506 (2.13GHz/4-core/4MB/80W) Processor Kit	507825-B21
	HP BL280c G6 Intel® Xeon® E5504 (2.00GHz/4-core/4MB/80W) Processor Kit	507826-B21
	HP BL280c G6 Intel® Xeon® L5630 (2.13GHz/4-core/12MB/40W) Processor Kit	598142-B21
	Dual-Core Processor Option Kits	
	HP BL280c G6 Intel® Xeon® E5502 (1.86GHz/2-core/4MB/80W) Processor Kit	507827-B21
	HP BL280c G6 Intel® Xeon® E5503 (2.0GHz/2-core/4MB/80W) Processor Kit	598144-B21

HP Memory	Registered DIMMS (RDIMMs)	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
	HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
	HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit NOTE: Low Voltage DIMMs can only be used with Intel Xeon 5600 series processors.	604504-B21
	HP 4GB (1x4GB) Quad Rank x8 PC3-8500 (DDR3-1066) Registered CAS-7 Low Power Memory Kit	500660-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3L-10600 (DDR3-1333) Unbuffered CAS-9 Low Power Memory Kit	619488-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit NOTE: Low Voltage DIMMs can only be used with Intel Xeon 5600 series processors.	604506-B21

Core Options

	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
	HP 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit	627812-B21
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21
	NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator. NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient NOTE: PC3L is a low voltage memory	
HP Hard Drives	NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components. NOTE: Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.	
	SATA Non-Hot Plug SFF (2.5-inch) Midline (MDL) Drives	
	HP 500GB 3G SATA 7.2K rpm SFF (2.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507753-B21
	SATA Non-Hot Plug SFF (2.5-inch) Entry (ETY) Drives	
	HP 500GB 3G SATA 7.2K rpm SFF (2.5-inch) Non-hot plug Entry 1yr Warranty Hard Drive	628033-B21
	NOTE: SATA drives have a 1 year warranty. Please see the SATA Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature: http://h18000.www1.hp.com/products/quickspecs/13021_na/13021_na.html	
	SATA Non-hot Plug 2.5" Midline (MDL) Solid State Drives	
	HP 400GB 3G SATA MLC SFF (2.5-inch) Non-hot plug Enterprise Mainstream 3yr Wty Solid State Drive	636605-B21
	HP 200GB 3G SATA MLC SFF (2.5-inch) Non-hot plug Enterprise Mainstream 3yr Wty Solid State Drive	636601-B21
	HP 120GB 3G SATA SFF (2.5-inch) Non-hot plug Midline 1yr Wty Solid State Drive	572077-B21
	HP 100GB 3G SATA MLC SFF (2.5-inch) Non-hot plug Enterprise Mainstream 3yr Wty Solid State Drive	636599-B21
	NOTE: Please see the for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13415_na/13415_na.html	
	SAS Non-Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives	

Core Options

HP 600GB 6G SAS 10K rpm SFF (2.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	590698-B21
HP 300GB 6G SAS 10K rpm SFF (2.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	537809-B21
HP 72GB 6G SAS 15K rpm SFF (2.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	537805-B21

NOTE: SAS drives are only supported with the use of the HP Smart Array P712m Controller.

NOTE: Please see the for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12244_na/12244_na.html

Additional Options

HP Insight Software	HP Insight Control	
	HP Insight Control including 1yr 24x7 Technical Support and Updates Electronic License	T9074BAE
	HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License	452148-B22
	HP Insight Software Media Kit NOTE: Insight Software DVD media without licenses. Contains Insight Control, Insight Dynamics and Virtual Connect Enterprise Manager. Uses an integrated installer to perform quick and accurate software installation and updates. NOTE: Licenses ship without media. The HP Insight Control Media Kit can be ordered separately, or can be downloaded at: http://www.hp.com/go/insightupdates. NOTE: Electronic licenses can be used to purchase multiple licenses with a single activation key. NOTE: Customer will receive a license entitlement certificate, which must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support & Update Service. NOTE: For additional license kits, including bundles with HP BladeSystem enclosures, please see the Insight Control QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/12631_na/12631_na.html	436222-B21
	HP Insight Control for Linux	
	HP Insight Control for Linux including 1yr 24x7 Support Electronic License NOTE: This part number can be purchased as a single license or as multiple licenses with a single activation key. Customer will receive a license entitlement certificate via e-mail. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. NOTE: Electronic LTUs are only available through limited points of sales; if not available, order a printed license entitlement certificate instead.	TC213AAE
	HP Insight Control for Linux including 1yr 24x7 Support Single Server License	TC209A
	HP Insight Control for Linux Media Kit NOTE: This optional Media pack DVD contains the ISO image for HP Insight Control for Linux, HP Systems Insight Manager, HP Insight Control power management, HP Insight Control virtual machine management, and an integrated installer. Servers must be acquired separately. NOTE: This Media pack is optional because the latest ISO image and latest updates may be downloaded at no cost from: http://www.hp.com/go/ic-linux (click on Download button). NOTE: Licenses ship without media. The Media Kit for Insight Control for Linux can be ordered separately, or can be downloaded at: http://www.hp.com/go/ic-linux (click on Download button). NOTE: Electronic licenses can be used to purchase multiple licenses with a single activation key. NOTE: Customer will receive a license entitlement certificate, which must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service. NOTE: For additional License Kits, please see the Insight Control for Linux QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/13019_na/13019_na.html	TC208A

Additional Options

	HP Integrated Lights-Out (iLO) Advanced for BladeSystem	
	HP iLO Advanced for BladeSystem including 1yr 24x7 Support Electronic License	TA851AAE
	HP iLO Advanced for BladeSystem including 1yr 24x7 Support Single Server License	512488-B21
	NOTE: Customer will receive a license entitlement certificate, which must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service. NOTE: For additional license kits please see the HP ProLiant Onboard Administrator (OA), powered by the Integrated Lights-Out 2 QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12362_na/12362_na.html	
	HP Insight Control server deployment software	
	HP Insight Control Server Deployment including 1yr 24x7 Support Electronic License	T9082AAE
	HP Insight Control Server Deployment including 1yr 24x7 Support Single Server License	452151-B21
	NOTE: Licenses ship without media. The Insight Control Media Kit can be ordered separately, or can be downloaded at: http://www.hp.com/go/insightupdates. NOTE: Electronic licenses can be used to purchase multiple licenses with a single activation key. NOTE: Customer will receive a license entitlement certificate, which must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service. NOTE: For additional license kits please see the Insight Control QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/12631_na/12631_na.html	
High Performance Clusters	**HP Cluster Management Utility**	
	HP Cluster Management Utility Flexible License NOTE: This part number can be used to purchase one certificate for multiple licenses with a single activation key. Each license is for one node (server). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key.	QL803A
	HP Cluster Management Utility Media NOTE: Order a minimum of one license per cluster to purchase media including software and documentation, which will be delivered to the customer, and also licenses CMU management. No license key is delivered or required. NOTE: For additional license kits please see the QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/12612_na/12612_na.html	433257-B21
	HP HPC Linux Value Pack	
	HP High Performance Computing Linux Value Pack 1 Processor Flexible License NOTE: This part number can be used to purchase one certificate for multiple licenses with a single activation key. Each license is for one socket (a.k.a. processor). Customer will receive a printed end user license agreement and license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online in order to obtain a license key.	TC293B
	HP High Performance Computing Linux Value Pack Media Kit NOTE: This part number can be used to purchase media including software and documentation, which will be delivered to the customer.	TC294A

NOTE: For additional license kits please see the QuickSpecs at:
http://h18004.www1.hp.com/products/quickspecs/13485_na/13485_na.html

HP Security - TPM	HP Trusted Platform Module Option	488069-B21
	NOTE: The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.	
HP Storage Controllers	**HP Smart Array 700m Controller**	
	HP Smart Array P700m/256 4-ports Ext PCIe x8 SAS Controller	507925-B21
	HP Smart Array P700m/512 4-ports Ext PCIe x8 SAS Controller	508226-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/13175_na/13175_na.html	
	Smart Array P711m Controller	
	HP Smart Array P711m/1G 6Gb FBWC 4-ports Ext Mezzanine SAS Controller	513778-B21
	Smart Array P712m Controller	
	HP Smart Array P712m/256 6Gb 2-ports Int/2-ports Ext Mezzanine SAS Controller	488348-B21
	HP Smart Array P712m/ZM 2-ports Int PCIe x8 SAS Controller	484299-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/13296_na/13296_na.html	
	Optional Upgrade	
	HP 256MB P-series Cache Upgrade	462968-B21
	HP 1GB Flash Backed Cache	534562-B21
	HP 512MB Flash Backed Write Cache	534916-B21
	HP Smart Array P-Series Low Profile Battery	452348-B21
	HP 650 mAh P-series Low Profile Battery	575031-B21
	HP Smart Array Advanced Pack including 1yr 24x7 Technical Support and Updates Single Server License	516471-B21
	NOTE: This part number can be used to purchase a single license or to order multiple licenses with a single activation key. Customers will receive a license entitlement certificate via e-mail. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Include one year of 24x7 HP Software Technical Support Services.	
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13200_na/13200_na.html	
HP I/O Expansion Options	HP 320GB IO Accelerator for BladeSystem c-Class	AJ878B
	HP 640GB IO Accelerator for BladeSystem c-Class	BK836A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13220_na/13220_na.html	

Additional Options

HP c-Class Mezzanine Options	HP 4X QDR QLogic InfiniBand Dual Port Mezzanine HCA for c-Class BladeSystem	583210-B21
	HP 4X QDR InfiniBand ConnectX-2 Dual Port Mezzanine HCA for c-Class BladeSystem	592519-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/12586_na/12586_na.html	
HP Ultrium Tape Blades	HP SB1760c Tape Blade	AQ697A
	NOTE: LTO-4 Ultrium technology.	
	NOTE: The HP PCI Express Mezzanine Pass-Thru Card for HP BladeSystem (431643-B21) is required when installing a tape blade adjacent to a full-height server blade.	
	NOTE: Please see the for Technical Specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/12729_na/12729_na.html	
HP Storage Blades	HP LTO-5 SB3000c Tape Blade	BS580A
	NOTE: Please see the for Technical Specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/12729_na/12729_na.html	
	HP SB40c with Virtual SAN Appliance Software Bundle	AT459A
	NOTE: Please see the for Technical Specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/12587_na/12587_na.html	
	HP D2200sb Storage Blade	AP880A
	NOTE: Please see the HP D2200sb PCIe Storage Blade QuickSpecs for technical specifications and additional information at: http://h18006.www1.hp.com/storage/bladesystem/index.html.	
HP Expansion Blade	HP BLc PCI Expansion Blade	448018-B21
	NOTE: Ships with one pre-installed PCI-X connect board. Also includes one PCIe connect board which requires installation.	
	NOTE: Please see the for Technical Specifications and additional information at: http://h18000.www1.hp.com/products/quickspecs/12753_na/12753_na.html	
HP USB and SD Options	HP USB 2-Button Optical Scroll Mouse	DC172B
	HP 2GB USB Flash Media Drive Key Kit	608447-B21
	NOTE: HP qualified blank USB key for use with HP ProLiant servers that support the VMware virtualization environment and other HP value-add software like SmartStart. HP recommends this industry standard USB flash device for use with VMware ESXi. USB device must be installed in the internal slot of the ProLiant server for use with VMware ESXi. Refer to HP VMware Getting Started Guide for installation instructions.	
	HP USB Standard Keyboard	DT528A#ABA
	HP 4GB Secure Digital High Capacity Flash Media Kit	580387-B21
	NOTE: Blank SD media devices are supported for use with VMware and Citrix. SD media must be installed in the internal slot of the ProLiant server. Learn more at: http://www.hp.com/go/proliantvirtualization	

Additional Options

HP Care Pack Services

NOTE: The HP Care Pack service part numbers below for ProLiant BL c-Class server blades, cover the server blade and all HP branded hardware options qualified for the server, purchased at the same time or afterwards, internal to the server.

Hardware Services On-site Service

HP 3 year 4 hour 13x5 BL2xxc Server Blade Hardware Support	UK042E
HP 3 year 4 hour 24x7 BL2xxc Server Blade Hardware Support	UK043E
HP 3 year 6 hour 24x7 Call to Repair BL2xxc Server Blade Hardware Support	UK044E

NOTE: Memory configurations listed do not apply to "Factory Integrated Models".

Memory Population Guidelines

For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator

Some DIMM installation guidelines are summarized below:

- For the HP ProLiant BL280c G6 server with twelve (12) memory slots:
  - There are three (3) channels per processor; six (6) channels per server
  - There are two (2) DIMM slots for each memory channel; twelve (12) total slots.
  - Memory channel 1 consists of the two (2) DIMMs that are closest to the processor
  - Memory channel 3 consists of the two (2) DIMMs that are furthest from the processor
- DIMM slots that are white should be populated first
- Do not mix Unbuffered memory (UDIMMs) with Registered memory (RDIMMs).
- Do not install DIMMs if the corresponding processor is not installed
- If only one processor is installed in a 2CPU system, only half of the DIMM slots are available
- To maximize performance, balance the total memory capacity between all installed processors
- It is not required, but it is recommended to load the channels similarly if possible
- If any Quad rank DIMMs are installed, all channels are limited to only 2 DIMMs per channel
- You can only install two quad-rank DIMMs per channel
- You can only install two UDIMMs per channel; if available, the third slot in the channel must remain empty
- Populate DIMMs from heaviest load (quad-rank) to lightest load (single-rank) within a channel
- Heaviest load (DIMM with most ranks) within a channel goes furthest from the processor
- For memory mirroring mode, channel 3 must be unpopulated. Channels 1 and 2 are populated identically
- For lock-step mode, channel 3 must be unpopulated. DIMMs in channels 1 and 2 will be installed in pairs. The paired slots will be 1,4; 2,5; 3;6 on a 3DPC system or 1,3, 2, 4; on a 2DPC system
- Low Voltage DIMMs can only be used with Intel Xeon 5600 series processors.
- If mixing DIMM voltage is a requirement, please note that the DIMMs will run at 1.5V since all 1.35V are capable of supporting 1.5V operations

DIMM slot/capacity/populated speed table										
DIMM Type	Registered DIMMS (RDIMMs)							Unbuffered with ECC DIMMs (UDIMMs)		
DIMM Rank	Single Rank (1R)	Dual Rank (2R)				Quad Rank (4R)		Single Rank (1R)	Dual Rank (2R)	
DIMM Capacity	4GB	2GB	4GB	8GB	16GB	4GB	16GB	1GB	2GB	4GB
DIMM Native Speed (MHz)	1333	1333	1333	1333	1333	1066	1066	1333	1333	1333
Voltage	LV/Std	Std	Std	LV/Std	LV/Std	Std	Std	Std	Std	Std
	SLOTS THAT CAN BE POPULATED									
12 slot servers	12	12	12	12	12	12	12	12	12	12
	MAXIMUM CAPACITY (GB)									
	48	24	48	96	192	48	192	12	24	48
	POPULATED DIMM SPEED (MHz)									
1 DIMM Per Channel	1333	1333	1333	1333	1333	1066	1066	1333	1333	1333

Memory

2 DIMM Per Channel	1333	1333*	1333*	1333*	1066/ 1333**	800	800	1333*	1333*	1333*
*Supported at 1333 via setting in ROM based setup utility (RBSU). **2DPC: LV runs at 1066, Std voltage runs at 1333										

NOTES:

- PC3-10600 DIMMs have a maximum speed of 1333MHz. PC3-8500 DIMMs have a maximum speed of 10600MHz.
- Mixing DIMM speeds is allowed, but the system processor speed rules always override the DIMM capabilities
- If you do mix DIMM speeds, the memory bus will default to the minimum clock rate of all DIMMs in the system - even if the slower DIMM is on the other processor
- If you install 1x 1066MHz DIMM in channel 1 and 1x 1333MHz DIMM in channel 2, you still run at 1066MHz
- If you install 1x 1066MHz DIMM in channel 1 and 5x 1333MHz DIMMs with 1 DIMM Per Channel (DPC) in each of the other channels, you run at 1066MHz
- If you install 3DPC in one channel (if applicable) and 1DPC in all other channels, you run at 800MHz
- Maximum memory speed will also depend on processor installed.
- References to the above MHz speeds are for the various speeds of DDR3 DIMMs; 1333 refers to DDR3-1333, etc.

HP ProLiant BL280c G6 Server Blade DIMM slot and configuration diagrams

Basic memory slot and population diagram

- Population order; start with "A" first, "B" second, "C" third, etc.

12 DIMM SLOTS (6 per CPU node)					
	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	D	1	D	Chnl 1
	2	A	2	A	
Chnl 2	3	E	3	E	Chnl 2
	4	B	4	B	
Chnl 3	5	F	5	F	Chnl 3
	6	C	6	C	

HP ProLiant BL280c G6 Server Blade (1P Model)

Standard memory configuration (1 CPU model)

- 2GB (1 x 2GB) of PC3-10600 (DDR3-1333) ECC RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	D: empty	1	D: empty	Chnl 1
	2	A: 2GB DIMM	2	A: empty	
Chnl 2	3	E: empty	3	E: empty	Chnl 2
	4	B: empty	4	B: empty	
Chnl 3	5	F: empty	5	F: empty	Chnl 3
	6	C: empty	6	C: empty	

Standard Memory Plus Optional Memory (1 CPU model)

- 82GB
  - 1x 2GB dual-rank PC3-10600 RDIMMs
  - 5x 16GB quad-rank PC3-10600 or PC3-8500 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	D: 2GB DIMM	1	D: empty	Chnl 1
	2	A: 16GB DIMM	2	A: empty	
Chnl 2	3	E: 16GB DIMM	3	E: empty	Chnl 2
	4	B: 16GB DIMM	4	B: empty	
Chnl 3	5	F: 16GB DIMM	5	F: empty	Chnl 3
	6	C: 16GB DIMM	6	C: empty	

Standard Memory Replaced with Optional Memory (1 CPU model)

- 96GB, consisting of six (6) 16GB quad-rank PC3-10600 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	D: 16GB DIMM	1	D: empty	Chnl 1
	2	A: 16GB DIMM	2	A: empty	
Chnl 2	3	E: 16GB DIMM	3	E: empty	Chnl 2
	4	B: 16GB DIMM	4	B: empty	
Chnl 3	5	F: 16GB DIMM	5	F: empty	Chnl 3
	6	C: 16GB DIMM	6	C: empty	

UDIMM maximum configuration (1CPU model)

- 24GB, consisting of six (6) 2GB dual-rank PC3-10600 UDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	D: 4GB DIMM	1	D: empty	Chnl 1
	2	A: 4GB DIMM	2	A: empty	
Chnl 2	3	E: 4GB DIMM	3	E: empty	Chnl 2
	4	B: 4GB DIMM	4	B: empty	
Chnl 3	5	F: 4GB DIMM	5	F: empty	Chnl 3
	6	C: 4GB DIMM	6	C: empty	

Memory

Standard Memory Replaced with Optional Memory (2 CPU Model)
RDIMM maximum configuration

- 192GB, consisting of twelve (12) 16GB quad-rank PC3-10600 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	D: 16GB DIMM	1	D: 16GB DIMM	Chnl 1
	2	A: 16GB DIMM	2	A: 16GB DIMM	
Chnl 2	3	E: 16GB DIMM	3	E: 16GB DIMM	Chnl 2
	4	B: 16GB DIMM	4	B: 16GB DIMM	
Chnl 3	5	F: 16GB DIMM	5	F: 16GB DIMM	Chnl 3
	6	C: 16GB DIMM	6	C: 16GB DIMM	

UDIMM maximum configuration (2 CPU model)

- 48GB, consisting of twelve (12) 4GB dual-rank PC3-10600 UDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	D: 4GB DIMM	1	D: 4GB DIMM	Chnl 1
	2	A: 4GB DIMM	2	A: 4GB DIMM	
Chnl 2	3	E: 4GB DIMM	3	E: 4GB DIMM	Chnl 2
	4	B: 4GB DIMM	4	B: 4GB DIMM	
Chnl 3	5	F: 4GB DIMM	5	F: 4GB DIMM	Chnl 3
	6	C: 4GB DIMM	6	C: 4GB DIMM	

NOTE: Capacity references are rounded to the common Gigabyte values.

- 1GB = 1024MB
- 2GB = 2048MB
- 4GB = 4096MB
- 8GB = 8192MB
- 16GB = 16384MB

Memory

HP Memory

Following are memory options available from HP:

Registered DIMMs (RDIMMs)

HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604504-B21
NOTE: Low Voltage DIMMs can only be used with Intel Xeon 5600 series processors.	
HP 4GB (1x4GB) Quad Rank x8 PC3-8500 (DDR3-1066) Registered CAS-7 Low Power Memory Kit	500660-B21
HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604506-B21
NOTE: Low Voltage DIMMs can only be used with Intel Xeon 5600 series processors.	
HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
HP 16GB (1x16GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 LP Memory Kit	627812-B21

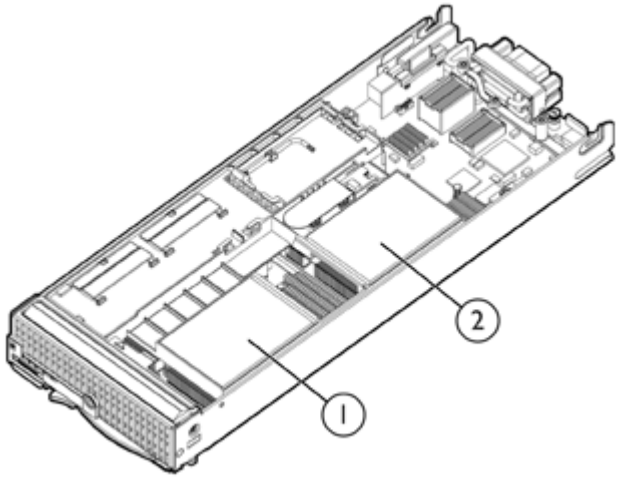
Unbuffered with ECC DIMMs (UDIMMs)

HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21
HP 4GB (1x4GB) Dual Rank x8 PC3L-10600 (DDR3-1333) Unbuffered CAS-9 Low Power Memory Kit	619488-B21

NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.

NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: http://www.hp.com/go/proliant-energy-efficient

NOTE: PC3L is a low voltage memory



1-2 2 x SSF SAS/SATA/SSD Non-Hot Plug Hard Drives

Hard Drives

NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

NOTE: Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

SATA Non-Hot Plug SFF (2.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
500GB 3G SATA 7.2K	2	1-2	HP Embedded SATA RAID Controller

SATA Non-Hot Plug SFF (2.5-inch) Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
500GB 3G SATA 7.2K	2	1-2	HP Embedded SATA RAID Controller

SAS Non-Hot Plug SFF (2.5-inch) Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
600GB 6G SAS 10K 300GB 6G SAS 10K 72GB 6G SAS 15K	2	1-2	HP Smart Array P712m Controller

SATA Non-hot Plug 2.5" Midline (MDL) Solid State Drives

	Quantity Supported	Position Supported	Controller
400GB 3G SATA MLC SFF SSD 200GB 3G SATA MLC SFF SSD 120GB 3G SATA 100GB 3G SATA MLC SFF SSD	2	1-2	HP Embedded SATA RAID Controller

Storage

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
Enterprise Virtual Array Systems	Please see the XP Disk Array Systems QuickSpecs below to determine configuration requirements	External	Please see the XP Disk Array Systems Quick Specs for the latest list of supported HBAs

HP Enterprise Virtual Array Family: http://h18006.www1.hp.com/products/quickspecs/12408_na/12408_na.html

System Unit	**Dimensions** (H x W x D) (with bezel)	7.11 in x 2.03 in x 20.06 in (18.06 cm x 5.14 cm x 50.95 cm)	
	Weight (approximate)	Maximum (all hard drives and processors installed)	14.5 lb (6.58 kg)
		Minimum (one hard drive and processor installed)	9.4 lb (4.26 kg)
	Power Specifications	For power specifications including Input Requirements, BTU Rating, and Power Supply Output, please see the HP BladeSystem c-Class Enclosure QuickSpecs located at URL: HP BladeSystem c3000 Enclosure QuickSpecs: http://h18000.www1.hp.com/products/quickspecs/12790_na/12790_na.html HP BladeSystem c7000 Enclosure QuickSpecs: http://h18000.www1.hp.com/products/quickspecs/12810_na/12810_na.html To review typical system power ratings use the HP BladeSystem Power Sizer which is available via the online tool located at URL: http://www.hp.com/go/bladesystem/powercalculator	
	System Inlet Temperature	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).
		Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
	Relative Humidity (non-condensing)	Operating	10 to 85% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
		Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
	Altitude	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
		Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Acoustic Noise	For acoustic noise specifications, please see the HP BladeSystem c-Class Enclosures QuickSpecs located at URL:	

HP BladeSystem c3000 Enclosure QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/12790_na/12790_na.html
HP BladeSystem c7000 Enclosure QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/12810_na/12810_na.html

HP Integrated NC362i Dual Port Gigabit Server Adapter Network Processor	Network Processor	NC362i
	Data Transfer Method	Four lane (x4) PCI Express
	Network Transfer Rate	2000 Mb/s full duplex (theoretical maximum value)
	IEEE Compliance	802.1p, 802.1Q, 802.3, 802.3ad, and 802.3x
	Standard Features	• 9K jumbo frames • TCP/IP checksum offload (TCO) • Large send offload (LSO) • Interrupt coalescence • Dual address cycles (DAC) • Wake-on-LAN (WOL) • Pre-boot execution environment (PXE) • ProLiant Teaming including Network Fault Tolerance, Transmit Load Balancing, and Switch-Assisted Load Balancing • IPv6 packet transmit and receive (excluding all offload capabilities); IPv6 aware SNMPv1 agents for Windows

HP Integrated Lights-Out 2 (iLO 2) integrated on system board	Architecture	32-bit PCI-based health and remote management ASIC
	Processor	32-bit RISC processor core running at 66MHz
	Upgradeability	Option firmware upgradeable via Flash ROM
	Video Support	Utilizes the host server's embedded video chip - supports VGA/SVGA, 640 x 480 (256 to 16.7M colors), 800 x 600 (256 to 16.7M colors), 1024 x 768 (256 to 65K colors), 1280 x 1024 (256 colors)
	Interfaces	One Ethernet network connection (10/100 Mb/s)
	Memory	4-MB Flash ROM 16-MB SDRAM
	Operating System Support	Microsoft Windows Server 2008 Standard Edition (32bit and 64bit) Microsoft Windows Server 2008 Enterprise Edition (32bit and 64bit) Microsoft Windows Server 2003 and Windows Server 2003 R2, and Windows Server 2003 for Extended Systems Standard Edition, Enterprise Edition Red Hat Enterprise Linux 5.4 (32bit and 64bit) SUSE LINUX Enterprise Server 11 (32bit and 64bit) SUSE LINUX Enterprise Server 10 (32bit and 64bit) VMware ESX 4.0 VMware ESX 3.5.0

	Client System Support	Microsoft Windows XP Professional Edition
		Microsoft Windows Vista Business and Ultimate Editions
		Red Hat Enterprise Linux Desktop 5.00
		SUSE Linux Enterprise Desktop 11
		SUSE Linux Enterprise Desktop 10
	Client Browser Support	Microsoft Internet Explorer 7
		Microsoft Internet Explorer 6
		Firefox 3.5 (on supported Windows and Linux systems)
		Firefox 3.0 (on supported Windows and Linux systems)
	Command Line Support	Telnet, Secure Shell and serial port access
		Secure Socket Layer
	Security	Secure Shell version 2 (Password and certificate)
		Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser, CLP and XML scripting interface
		RC4 encryption of video
	Directory Support Services	Active Directory v1.0 (Windows 2003)
	Driver Support	Health Driver (HP ProLiant iLO 2 Management Controller Driver) iLO Management Channel Interface Driver
	Management protocols supported	SNMP 2, IPMI 2.0 (KCS interface), DMTF Server Management Command Line Protocol Specification
		(SM CLP), DMTF Web Services Management Specification (WS Management)
Environment-friendly Products and Approach	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.